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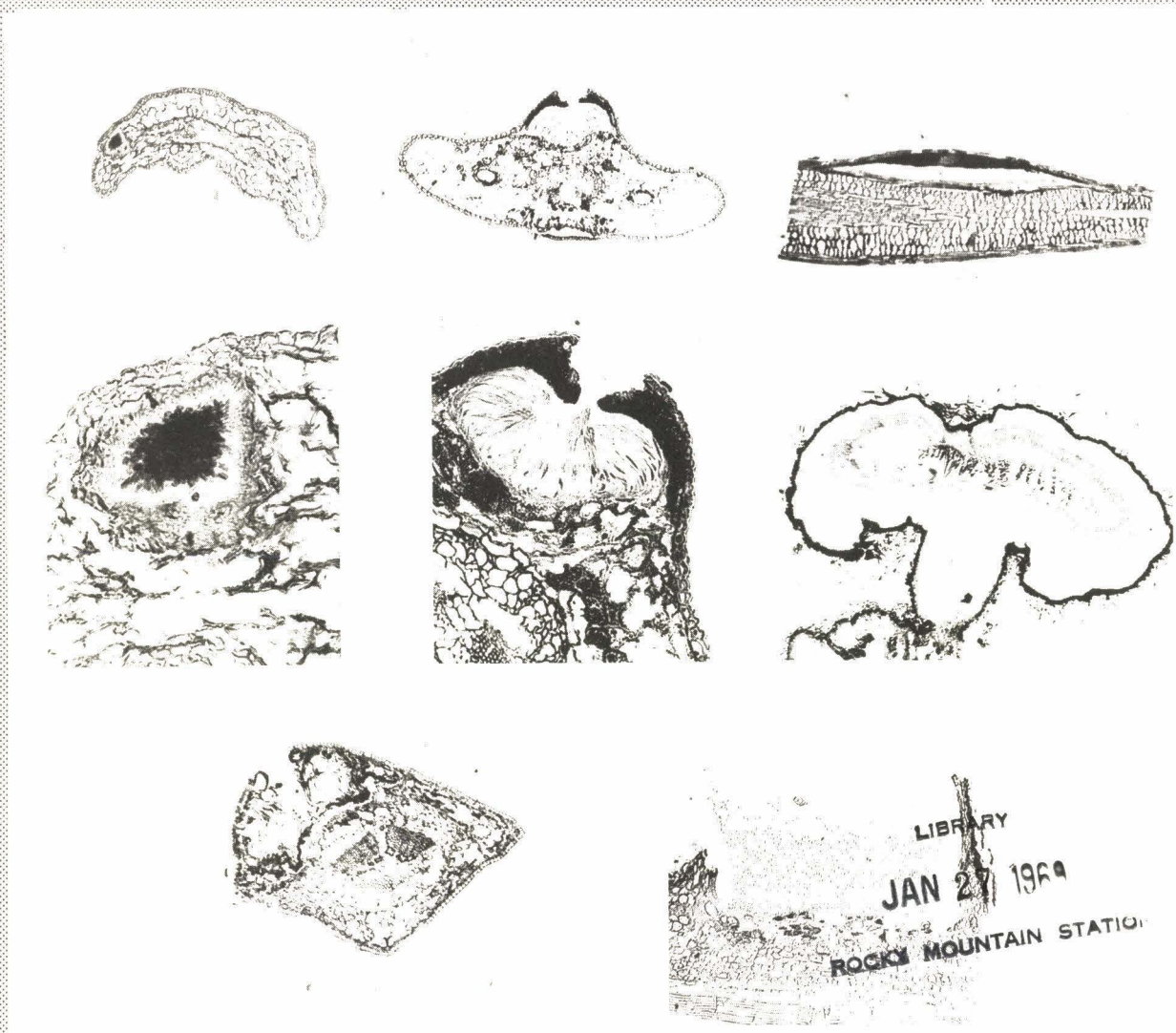
FOREST DISEASE CONDITIONS IN THE NORTHERN REGION 1967--1968



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FOREST DISEASE CONDITIONS IN THE NORTHERN REGION
1967-1968

Cover: Photomicrographs of fruiting structures of various fungi pathogenic to coniferous trees in the Northern Region.

Top row, left to right: (1) Unidentified imperfect fungus on lodgepole pine needle, (2) Lophodermium on subalpine fir needle, and (3) Longitudinal section through ponderosa pine needle of immature Hypodermella sp.

Second row: (1) Closeup of top #1, (2) Closeup of top #2, and (3) Lachnellula arida on western larch stem.

Bottom row: (1) Unidentified imperfect fungus in ponderosa pine needle, (2) Stalactiform rust aecium on lodgepole pine.

All sections are 9 microns in thickness stained with basic fuchsin and fast green. Histological sections and photography by C. E. Carlson.

FOREST DISEASE CONDITIONS IN THE NORTHERN REGION
1967-1968

By

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Forest Insect and Disease Branch

CONDITIONS IN BRIEF

The dwarf mistletoes constitute the major disease problem in the Region. White pine blister rust is still causing mortality. A canker on larch reproduction was found in all examined stands in the Region. Douglas-fir needle cast caused severe needle discoloration for the fourth and fifth successive years in several drainages in western Montana and northern Idaho. Lodgepole pine needle casts were scattered throughout the lodgepole pine type. Larch needle cast was prevalent in northwestern Montana in 1967. Root rots caused decline and mortality throughout the Douglas-fir type. Verticicladiella root disease has killed most of an eastern white pine plantation near the Sylvanite Station on the Kootenai National Forest. Extremely dry weather apparently caused decline and some mortality of Douglas-fir and ponderosa pine reproduction in 1967. The 1967 drought was probably a contributing factor to conditions noted on other species during 1968.

DWARF MISTLETOES

Figure 1.--Dwarf mistletoe broom on Douglas-fir, caused by Arceuthobium douglasii.

The dwarf mistletoes, Arceuthobium spp., are still the major disease problem in the Region. The parasite is responsible for about one-half of all mortality attributable to disease, and is second only to heart rots as the cause of growth loss. Annual mortality and growth loss are unspectacular, but when considered in relation to rotation age, are very significant.

WHITE PINE BLISTER RUST

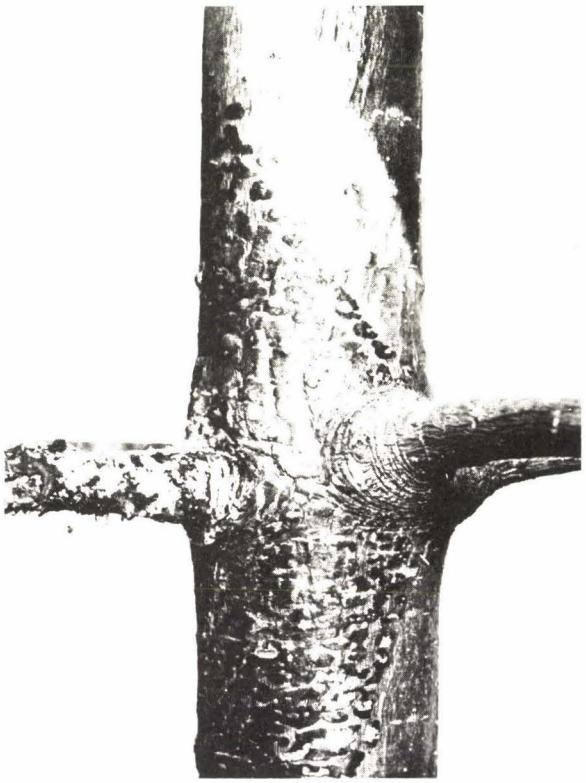

Figure 2.--White pine blister rust canker on western white pine, caused by Cronartium ribicola.

White pine blister rust, caused by Cronartium ribicola A. Fischer, is still causing mortality in the Region. In 1966, an evaluation was made of the effectiveness of ribes eradication in preventing blister rust in infection. Results showed that stand infection was increasing at an average rate of 3 percent per year. Little correlation existed between the rates of infection and the number of ribes per acre within the stand and its protection zone. This evaluation led to the decision to discontinue ribes eradication in the Region. The operational use of antibiotics for the control of existing infections of blister rust was also discontinued in 1966.

LARCH CANKER

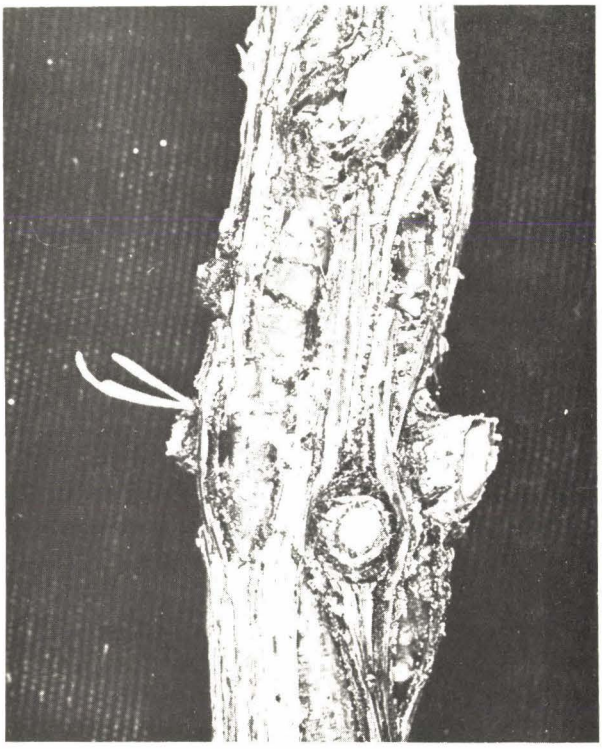

Figure 3.--Canker on western larch, caused by a fungus complex.

A canker on western larch reproduction, likely caused by a complex of fungi including Phomopsis sp., Cytospora sp., Pyronellaea sp. and Lachnellula arida, has been found in forty-two 5- to 20-year-old stands in the Northern Region. Severe infection (40 percent of the larch stems) was observed in one stand on the Flathead National Forest near Lindbergh Lake, and on the Kootenai in the Skid Creek drainage. Similar cankers were found on Douglas-fir on the Helena and Beaverhead National Forests and on subalpine fir on the Flathead.

NEEDLE CASTS

Douglas-fir needle cast, caused by Rhabdocline pseudotsugae Syd., has caused severe needle discoloration for the fourth and fifth successive years in several drainages in western Montana and northern Idaho. Christmas tree plantations near Plains, Montana, and Sandpoint, Idaho, were heavily infected.

Lodgepole pine needle casts, caused by Hypodermella concolor (Dearn.) Darker, and H. montivaga (Petrak) Dearn., were scattered throughout the lodgepole pine type.

Larch needle cast, caused by Hypodermella laricis Tul., was prevalent on the Kootenai and Flathead National Forests.

ROOT ROTS

Figure 4.--Stain in western hemlock associated with Armillaria mellea root rot.

Root rots, caused by Fomes annosus (Fr.) Cooke, Poria weirii Murr., and Armillaria mellea (Vahl.) Quél., have caused decline and mortality throughout the Douglas-fir type. A survey to evaluate the extent of damage due to these three rot fungi was initiated in 1967 and continued in 1968. Fomes annosus was found causing mortality in a ponderosa pine plantation on the Colville National Forest.

MISCELLANEOUS DISEASES

Verticicladiella root disease has killed most of an eastern white pine plantation near the Sylvanite Station on the Kootenai National Forest since it was first reported in 1960. Dead ponderosa pine and lodgepole pine also show evidence of the fungus in their root systems.

Gymnosporangium rust galls on juniper were reported during 1968 on the Deerlodge and Gallatin National Forests.

Fruiting of Peridermium harknessii Moore, the causal agent of western gall rust, was quite evident in 1968 on ponderosa pine from western Montana and northern Idaho.

An as yet unidentified canker is causing damage in a ponderosa pine plantation near St. Maries, Idaho.

Extremely dry weather apparently caused the decline and mortality of Douglas-fir and ponderosa pine reproduction near Thompson Falls, Montana, in 1967. The 1967 drought was probably a contributing factor to declining conditions noted on other species during 1968.